

IT IS CLAIMED:

1. A composition for use in treating or preventing infection by *Pseudomonas aeruginosa* comprising

5 a *P. aeruginosa* pilin protein having an N-terminal peptide region modified to prevent self assembly of the peptide.

2. The composition of claim 1, further comprising a pharmaceutically acceptable carrier in which the peptide is formulated.

10 3. The composition of claim 1, wherein the modified N-terminal peptide region lacks an N-terminal portion of native *P. aeruginosa*.

15 4. The composition of claim 3, wherein the modified N-terminal region lacks the first 15 up to the first 40 amino acids residues of native *P. aeruginosa*.

20 5. The composition of claim 4, wherein the modified N-terminal region lacks the first 25 up to the first 30 amino acids residues of native *P. aeruginosa*.

25 6. The composition of claim 1, wherein the N-terminal peptide region is modified to prevent alpha-helical formation in the region.

7. The composition of claim 6, wherein the N-terminal peptide region is modified to contain proline residues or strings of glycine residues at positions effective to interrupt alpha-helical formation.

30 8. The composition of claim 1, wherein the N-terminal region of the pilin peptide has been replaced by a peptide moiety capable of forming a coiled-coil homodimer or heterodimer, and the composition contains two modified pilin peptides joined through a coiled-coil heterodimer or homodimer interaction.

9. The composition of claim 8, wherein modified pilin peptide has the sequence identified by SEQ ID. NOS. 2, 4, 6, 8 or 10.

35 10. The composition of claim 8, wherein the composition is a homodimer or heterodimer containing the modified pilin peptide from two different *Pseudomonas* strains.

11. A method of treating or preventing infection by *Pseudomonas aeruginosa* in a subject comprising

administering to the subject, a pharmaceutically effective amount of a *P. aeruginosa* pilin protein having an N-terminal peptide region modified to prevent self assembly of the peptide.

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12. The method of claim 11, wherein the peptide is contained in an aerosolizable vehicle, and said administering includes delivering an aerosol of the peptide to the subject's airway.

13. The method of claim 11, wherein the modified N-terminal peptide region lacks an N-terminal portion of native *P. aeruginosa*.

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14. The method of claim 13, wherein the modified N-terminal region lacks the first 15 up to the first 40 amino acids residues of native *P. aeruginosa*.

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15. The method of claim 13, wherein the modified N-terminal region lacks the first 25 up to the first 30 amino acids residues of native *P. aeruginosa*.

16. The method of claim 11, wherein the N-terminal peptide region is modified to prevent alpha-helical formation in the region.

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17. The method of claim 16, wherein the N-terminal peptide region is modified to contain proline residues or strings of glycine residues at positions effective to interrupt alpha-helical formation.

18. The method of claim 11, wherein the N-terminal region of the pilin peptide has been replaced by a peptide moiety capable of forming a coiled-coil homodimer or heterodimer, and the composition contains two modified pilin peptides joined through a coiled-coil heterodimer or homodimer interaction.

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19. The method of claim 18, wherein modified pilin peptide has the sequence identified by SEQ ID. NOS. 2, 4, 6, 8 or 10.

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